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Distributive Effects of Regional Trade Agreements on the "Small Trading Partners": Mercosur and the case of Uruguay and Paraguay*

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Abstract

Although trade integration has potential benefits for developing countries, it is disputed whether trade liberalization processes are, per se, sufficient for poverty reduction and inequality abatement. Abundant work has analyzed the link between tariff reduction, poverty levels and inequality in both developed and developing countries. Gains from trade are generally observed. Still, those benefits from integration are generally unevenly distributed.

In our analysis we explore how "gains from trade" have been distributed in the two minor trade partners of MERCOSUR: Uruguay and Paraguay. We study the link between trade, poverty and inequality by analyzing the impact of trade liberalization through two main transmission channels: prices and income. Our papers show that in the case of Mercosur, the effect of trade on poverty (and income inequality) varies per country and per region. In particular, we conclude that trade integration policies cannot be regarded as a "poverty-alleviating" policy, per se.

Keywords: regional trade agreements, poverty, inequality
JEL classification: F14, F16, D30, Q17

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I. Introduction

Open regionalism and regional integration is broadly regarded as an important component of development policy, and one which can play a positive role in poverty alleviation. In Latin America, the move towards a new wave of regionalism took place in the early 1990s. Across the region, the inward-looking policies had been largely discredited throughout the 1980s, to be replaced by a new paradigm that promoted 'open regionalism' as the most viable option for developing states to integrate effectively within a global economy marked by increasing interdependence, liberalisation and competition for investments.

In Latin America, the most important arrangement in the 'open regionalism' context is the MERCOSUR. MERCOSUR is embedded within a new policy framework; prior to joining, the signing members (Brazil, Argentina, Paraguay and Uruguay) were all democracies, with market-based economies. Its formation was motivated by the need to strengthen diplomatic relations between member countries, particularly Brazil and Argentina; second, the members aspired to enhance regional competitiveness and, thereby, promote regional development. Since its inception in 1991 to the mid-1990s, MERCOSUR achieved impressive growth in intra-regional trade. After the Asian crisis, the bloc's performance has been somewhat erratic. More recent setbacks, such as Brazil's currency devaluation (1999) and Argentine crisis (2001-2002), further stalled integration efforts.

In the case of MERCOSUR, the large trading partners (Argentina and Brazil) have been involved in constant disputes and conflicts on the subject of asymmetries and inequalities. Non-tariff barriers (NTBs) and rules of origin (RO) procedures act as an incentive to locate investment and production in the dominant market while leading to deindustrialisation in the peripheral ones.

Asymmetrical political power and institutional factors are not the only reason for MERCOSUR's poor trade performance since 1999. Unequal distribution of benefits - across trading partners and inside each country – can be a crucial obstacle to regionalism and full economic integration. Even in the textbook case, traditional trade theory acknowledges that although the gains from trade might be positive for a country as a whole, they might not be distributed evenly across all the groups. There is nowadays an increasing concern throughout the region over the asymmetric distribution of costs and benefits of trade integration. In this context, it is fundamental to

determine whether trade integration can be regarded as poverty reduction policy or, on the contrary, if it may be associated with intensified poverty effects.

Regressive outcomes are more likely in the absence of complementary domestic reforms and policies that would help maximize gains from trade, protect the most vulnerable from transitional costs and ensure an equitable distribution of net gains. Successful implementation of trade reforms that help the poor need to take into account many policy and institutional variables. In particular, there is a need for solutions that are tailored to specific country conditions. Initial conditions of infrastructure and education are key in determining the degree to which countries (subgroups or specific regions) benefit from trade liberalization. In thinking about such policies, “complementary measures” is actually a misnomer: these measures should be seen as a development agenda, of which trade is an important part. In order to design a domestic complementary agenda, it is therefore of the utmost importance to generate empirical evidence to determine the distributional impacts of trade liberalization.

In our analysis we explore how “gains from trade” have been distributed in the two minor trade partners of MERCOSUR: Uruguay and Paraguay. In our view, asymmetrical distribution of benefits can be a crucial obstacle to trade growth, full economic integration and economic growth, at last. Moreover, if benefits are not distributed across the entire population, poverty and inequality problems can be fostered. Such inequities can make regional integration efforts counterproductive.

The objective of this study is to assess the linkages between trade, poverty and inequality by analyzing the impact of Mercosur through two main transmission channels: prices and income. Following the methodology developed by Porto (2006), the study first assess the implications of a given trade shock, i.e. a Mercosur entry, in relative domestic prices of traded goods (imports and exports). Secondly, the study will analyze the response of labor income and consumption channels at the household level. This leads to the third step, which is the induced change in the head count poverty ratio. This methodology will allow us to identify the new income that individuals would earn as a result of a policy change, in order to determine to which extent trade liberalization contributes to poverty reduction. Detailed data at the household level will be used to assess how inequality and poverty have evolved over time, across regions (e.g. urban areas compared to the rest of the country) and across different household types (e.g. ranked according to the education level; etc.).

II. Regional Trade Integration: MERCOSUR

In 1991, Uruguay and Paraguay joined Argentina and Brazil giving birth to MERCOSUR, a Regional Trade Agreement (Treaty of Asuncion). The regional agreement fostered two main objectives: to eliminate any duties, charges and other restrictions applied to members' reciprocal trade and to begin a programme of gradual, linear and automatic tariff reductions for imports from third countries (not members of MERCOSUR). The creation of MERCOSUR marked the acceleration in the fall of import tariffs in both the Uruguayan and the Paraguayan case. In the MERCOSUR scenario, the Uruguayan and Paraguayan trade policy imaged those requirements of the trade block.

The Treaty of Asuncion also allowed for a list of exceptions submitted by each of the States Party. This list of exceptions should not be regarded as a minor detail since, in the end, it has represented a possibility to weaken the regional integration impulse. Since 1991, exceptions have created plentiful of disputes and negotiations among state parties, blocking further integration programs.

The Ouro Preto Treaty was signed in December of 1994. The agreement established the institutional structure of MERCOSUR and defined a general procedure for complaints to the MERCOSUR Trade Commission, a body created to monitor the application of the common trade policy instruments. Although it was not originally intended, Ouro Preto also implied a change in the liberalization schedule within MERCOSUR and relaxed the speed of the liberalization process and changed the mechanism of convergence.

From January 1995, MERCOSUR began to operate like an imperfect customs union. Ideally, MERCOSUR would enable the small trading partners to obtain preferential access to a large and close market. But at present there is a level of disenchantment with the integration process at Mercosur. In particular, many Uruguayans feel that the integration process has been slow-paced, responding to specific interests from industrial lobbying groups from Brazil and Argentina. In fact, the largest countries of MERCOSUR have not been diligent in removing various industrial policies, even contradicting the integration agreement. As an example, the proliferation of non-tariff barriers shows the low level of commitment to trade disciplines. At the beginning of the integration process it was possible to think about industrialization processes taking place in Paraguay or Uruguay in order to sell to Brazilian or Argentinean consumers. At

this time, it is patent that few investors (local or multinational firms) really consider that intra-zone trade flows are as smooth as they are supposed to be. At the extra-zone level, after more than a decade, the degree of compliance of national trade policies with the regional agreement is low. This is clearly observed when looking at current levels of the common external tariff in each country. Consequently the process is not meeting with universal free movement that should characterize a customs union and the rule of movement in the intra-regional trade is still that of a free trade area.

III. Poverty and Inequality in Uruguay and Paraguay

It is important to make clear that income inequality and poverty are different concepts. While income inequality refers to income distribution (a relative term), poverty refers to the relationship between (absolute) individual income and the poverty line. Poverty reduction may be associated to either higher income inequality or a more equal income distribution. It is broadly accepted that economic researchers and policy-makers should be concerned about both indicators of social welfare, when evaluating alternative policies.

Uruguay

Uruguay has been characterized by the fact that poverty indicators are below the Latin American average and by the fact the income distributions is considerably better (more equal) than in the rest of the region (see De Ferranti et al (2003)). Comparative analysis shows that poverty is far less extended in Uruguay than in the rest of Latin America while the income distribution is comparable to that of the developed countries.

In general, poverty and inequality indicators are quite stable along time in Uruguay. Also, poverty indicators among men and women follow similar evolutions. Various studies have described the stylized facts of income distribution and poverty in along the 1980s, 1990s and the beginning of the XXIst century. Bucheli and Rossi (1994) analyzed the evolution of income distribution between 1984 and 1992. They concluded that inequality was quite constant during that period. Rossi (2001) examined the evolution of inequality and poverty in Uruguay between 1989 and 1997.[1] His results show that wage inequality increased since 1991 and poverty increased between 1993

[1] Rossi used the Gini coefficient, the Theil index and the coefficient of variation to measure inequality.

and 1997. Similar results are obtained by Miles and Rossi (1999) and Gradin and Rossi (2000).

Paraguay

There is not a long tradition in studying distributional issues in Paraguay. It has been pointed out that the long dictatorship (1954-1989) was one of the main factors that contributed to restrict the analysis of poverty and inequality issues (MECOVI, 2002). Until 1983 there was no system of household surveys in Paraguay. Previous estimates of social conditions date back to the 1970s, and were based on specific surveys and studies.

Only after mid 1990s there was an increase in the study of poverty and inequality fueled by the availability of microdata at the national level, and the implementation of the MECOVI program. Poverty and inequality in Paraguay can be traced at a national level only since 1995 with the microdata of the Encuesta de Hogares-Mano de Obra (EH-MO, 1995), the Encuesta Integrada de Hogares (EIH, 1997-1998 and 2000-2001) and the Encuesta Permanente de Hogares (EPH, 1999, 2002 and 2003).

Table P2 reports poverty and inequality in the Asunción Metropolitan area and in all Paraguay in 1997 and 2002. Notice that the poverty estimates are considerably higher when computed over the whole country. Not only the level of poverty is magnified when considering the whole country: the increase in poverty for Paraguay between 1995 and 2002 has been larger than for Asunción. Table P2 also shows that inequality, as measured by the Gini coefficient, is higher when considering the complete sample. Again, not only the level but also the change is different when considering Paraguay, instead of Asunción.

IV. Methodology

Trade reforms cause direct changes in local relative prices which indirectly affect household's income, expenditure and welfare. On the expenditure side, net effects depend on product structure of the consumption basket and on whether individuals are net producers or net consumers. Changes in household's income are explained by the fact that the trade reforms imply a reallocation of resources between sectors, resulting in changes in factor prices, particularly wages. As we analyze both changes in prices and variations in income, we are able to determine the overall change in household

welfare. Recently, promising trade economics literature is attempting to precisely measure the net effect of trade integration on income distribution and poverty, taking into consideration both income and expenditure effects (Giordano and Florez, 2007). In our analysis, we expand the methodology used by Porto (2003) for the case of Argentina.

From a theoretical perspective, the impact of trade on wage inequality could go in either direction. In a Heckscher-Ohlin model, workers should see wages increase relative to capital owners' rents (alternatively, unskilled wages should go up relative to skilled wages) in a developing country relatively well-endowed with labor (or unskilled labor). In that case, workers would benefit relative to capital owners (or more skilled workers) and income distribution would improve. Under a specific factors model, however, workers that are unable to relocate to labor-intensive industries would lose, and the distributional impact of trade liberalization is ambiguous. Moreover, empirical studies show that the wage gap between skilled and unskilled workers may increase after trade and investment reform. This could occur, for example, if foreign-owned firms that begin operating in a developing country bring with them technology that increases the demand for skilled workers. In that case, the distributional impact is adverse.

We study the link between trade, poverty and inequality by analyzing the impact of trade liberalization through two main transmission channels: prices and income. The first possibility is that price changes are explained by the new tariff levels that result from trade reforms. Price changes may affect individuals in different ways, for example, depending on the share of each good in their consumption basket, as suggested earlier, or if individuals are net producers (as in the case of farmers) or net consumers. A second possibility is changes in household income. This effect is explained by the fact that trade liberalization imply a reallocation of resources between sectors, resulting in changes in factor prices in the process.

In this study we restrict the analysis to four trade goods: food and beverages (FB), Clothing and footwear (CF), house equipment and electronics (HQ), other traded goods (OT) and four non traded goods: health and education (HE), transport and communications (TC), housing (HO) and other non traded goods (ON). In the Appendix A we describe each categories of goods.

To analyze the distributional impact of MERCOSUR on Paraguayan and Uruguayan households we use a model based on Dixit and Norman (1980).The variation in

exogenous income (Y^0) need to compensated household i to keep the same utility after a change in the price of trade good k (k=1,…,4) because of the trade reform can be approximated by the following equation:

$$\frac{d Y_i^0}{dLn\tau_k}\frac{1}{e_i} = S_{ik}\frac{dLnP_k}{dLn\tau_k} + \sum_{n\in NT} S_{in}\frac{\partial LnP_n}{\partial LnP_k}\frac{dLnP_k}{dLn\tau_k} - \varepsilon_{wiP_k}\theta_{wi}\frac{dLnP_k}{dLn\tau_k} \qquad (1)$$

where Y_i^0 is the exogenous income of households i, τ_k is the tariff for traded good k, S_{ik} is the budget share spent on the good k by household i, P_k is the price of trade good k, P_n is the price of non traded good n, S_{in} is the budget share spent n by household i, ε_{wiP_k} is the wage price elasticity with respect to traded good k and θ_{wi} is the share of labor income in total household income.

The first term in equation (1) shows that for a given increase in the price of the trade good k, the higher the share the higher will be the income necessary to compensate the consumer. The budget share approximates the consumption effect. The second term of (1) shows the compensation generated by the change in the price of non trade good that is explained by the trade reform. Their importance is related also to the share spent on non traded goods. The first and second term in (1) approximate the consumption effect of the MERCOSUR. Finally, the last term is the labor effect. The trade reform, change the price of trade goods that change household wages. In order to assess the distributional effect to MERCOSUR we have to estimate the three terms of the previous equation.

i) Impact of tariffs on prices of traded goods

Initially, the project will estimate the impact of tariffs on prices. Following Deaton (1997) it is possible to approximate the change in consumption explained by the changes in prices using the expenditures shares of each of the goods. Therefore, it will be considering only the direct impact and not other indirect effects. In order to quantify the distributional effects of these price changes there are two possibilities. The first one consists in the estimation of price indices for each individual in the survey, based on pre-trade reform expenditures shares with both prices. In a second step, the effects on individuals of the price change that is explained by the reforms will be quantified. The second approach following Deaton (1997) consists in a nonparametric estimation of

expenditure shares across the entire distribution of consumption, and computing average market shares for different incomes. When using the second approach, results are highly dependant of a proper choice of the Kernel function, bandwidth and finally the procedure selected to compute the standard errors (bootstrap).

In particular, the induced changed in the price of trade good k after the trade reform is:

$$\Delta LnP_k = 0.5\sum_{l\in k} s_{lk}[\delta_{lm} Ln(1+\tau_{km}) + \delta_{kw} Ln(1+\tau_{krw}) - Ln(1+\tau_l^0)] \qquad (2)$$

where s_{lk} is the expenditure share of the sub category l in traded good k, δ_{lm} is the fraction of imports of good l coming from MERCOSUR and δ_{krw} is the fractions coming from the rest of the world. Equation (2) estimates the price change of traded goods from MERCOSUR.

ii) Impact of prices of traded goods on the price of non traded goods

In order to estimate the impact of the prices of traded goods on the prices of non traded goods we will estimate the following translog equation:

$$LnP_{nt} = \alpha + \sum_{k\in T}\beta_k LnP_{kt} + \sum_{k\in T}\gamma_k LnP_{kt-1} + 0.5\sum_{k\in T}\sum_{h\in T}\phi_{kh} LnP_{kt} LnP_{ht} + 0.5\sum_{k\in T}\sum_{h\in T}\lambda_{kh} LnP_{kt-1} LnP_{ht-1} + u_t \quad (3)$$

We regress the prices on traded goods on monthly prices of the traded goods and their interactions. In order to avoid a spurious regression we check for cointegration between the variables included in equation (3).

iii) Impact of prices on income

Some of the papers in this literature focus only on distribution effects of price changes after the reforms, without considering some import effects on the factor markets. This proposal seeks to quantify the impact of openness on total income. In addition the wage-price elasticity will be estimated. In particular we will regress the log of the real wage earned by person i against completed years of schooling (s), exogenous variables (z) such as age, marital status, children at home, region, etc, and the log prices of traded goods interacted with schooling and region.

$$Ln(w_i) = \alpha + \sum_k \beta_k Ln(p_i^k) + \gamma s_i + \delta z_i + \sum_k \lambda_k Ln(p_i^k) s_i + \sum_k \phi_k Ln(p_k^i) \text{Re}\, gion_i + u_i \qquad (4)$$

V Estimation

In this section we present the obtained results for the case of Uruguay and Paraguay, separately. In particular, we show the effect of MERCOSUR on the price of traded goods, the price of non-traded goods, the wage-price elasticities, the total effect and the poverty and inequality effects.

V.i The case of Uruguay

V.i.i Impact of Tariffs on Traded Goods

In Table U3 we estimate the induced change in tradable prices after MERCOSUR for the four categories of traded goods considered. We estimate the price change for the 1992-1996 period. MERCOSUR causes a decrease in the price of the four traded goods considered. It is remarkable that the price reduction was very similar across goods. The highest decrease was for the other traded goods (6.1) and the lowest was for house equipment (4.7%). It is remarkable that the price reduction was

Figure U1 shows the consumption effect for each of the traded good categories. The effect is positive for all off the individuals. However, for beverages and food, house equipment and electronics and others trade goods the consumption effect is pro poor. For the poor individuals the consumption gain is higher than for richer individuals. Figure U2 shows the pro poor consumption effect of traded goods.

V.i.ii Impact of Tariffs on Non Traded Goods

To avoid the spurious regression problem we apply the Engle-Granger cointegration test (based on residuals) to determine the long term equilibrium cointegrating relationship between each of the prices of nontraded good and the prices of the traded goods.

In the first step, we use the ADF unit root test to analyze the stationary of the prices. Table U4 indicates that all the price variables are non stationary with a unit root. Next,

we proceed to estimate the equation (3) by OLS and check for stationarity of the residuals. The result of the Engle-Granger based on residual cointegration tests show in Table U5 that the prices of non traded and the prices of traded goods are cointegrated. In other word, there is a stable long run relationship ion between both prices.

Figure U3 show that the consumption effect of non traded goods is pro-rich. This fact can be explained by the effect of the change of the price of traded goods in the housing price.

V.i.iii Wage-Price Elasticities

Because there are likely to be a large number of individuals who do not work (specially women) and therefore report zero wage it would not be appropriate to estimate equation (4), the wage equation, using OLS. Since the dependent variable is censored at zero, we only observe the wages of the employed individuals and estimation of the wage equation by OLS will simply yield inconsistent estimates. We allow the impact of the price of traded goods on wages to vary according to individual characteristics including schooling, age and geographical location of the household. This implies that the elasticities of wage and labor market participation with respect to prices vary from one individual to another, according to her age, schooling and geographic location. This is mandatory to estimate the impact of changes in prices on household wages at different points of the whole income distribution.

The Heckman selection model is estimated using maximum likelihood. All regressions include year and geographic location dummies. Estimates from this model allow us to calculate the impact of the price of trade goods on labor income and the impact of changes in prices of traded goods on the labor marker participation of each individual in the sample. We also take into consideration the fact that men and women's labor market rewards may differ and we therefore separately estimate wage equations by gender. Our wage equations are limited to individuals aged 18 through 55.

Figure U4 show that the labor effect of is pro-poor. This fact can be explained by the effect of the change of the price of traded goods has the highest impact in the wage of the low income individuals.

V.i.iv Estimation of Total Effect

Figure U5 presents the estimation of the consumption and labor income effect. Trade liberalization had a clear positive impact for both the highly paid and for those with the lower positions in the salary distribution.

V.i.v Poverty and Inequality Effects

We use the wage price elasticities estimated above to quantify the change in the head count ratio and income inequality indicators after Mercosur. In tables U6a and U6b we observe a reduction in poverty for low educated persons located in the border and in the central regions of Uruguay. We do not observe differences by gender. There are no significant changes in income inequality after reform. It is interesting to note that we observe a decrease in poverty but income inequality remains constant.

V.ii The case of Paraguay

V.ii.i Impact of Tariffs on Traded Goods

In table P3 we estimate the induced change in tradable prices after MERCOSUR for the four categories of traded goods considered. We estimate the price change for the 1992-1996 period. MERCOSUR causes a decrease in the price of the four traded goods considered. It is remarkable that the price reduction was not very similar across goods. The highest decrease was for the other traded goods (5.51) and the lowest was for clothing and food (0.9).

Figure P1 shows the consumption effect for each of the traded good categories. Estimations are made as a Kernel regression. The effect is positive for all off the individuals. However one for FB the consumption effect is clearly pro poor. For the poor individuals the consumption gain is higher than for richer individuals. For the other traded category the effect is pro rich. Figure P2 shows the pro poor consumption effect of traded goods.

V.ii.ii Impact of Tariffs on NonTraded Goods

To avoid the spurious regression problem we apply the Engle-Granger cointegration test (based on residuals) to determine the long term equilibrium cointegrating

relationship between each of the prices of nontraded good and the prices of the traded goods.

In the first step, we use the ADF unit root test to analyze the stationary of the prices. Table P5 indicates that all the price variables are non stationary with a unit root. Next, we proceed to estimate the equation (3) by OLS and check for stationarity of the residuals. The result of the Engle-Granger based on residual cointegration tests is shown in Table P6: prices of non-traded and prices of traded goods are cointegrated. In other words, there is a stable long run relationship ion between both prices.

Figure P3 shows that the consumption effect of non traded goods is pro-rich. This fact can be explained by the effect of the change of the price of traded goods in the transport and communications and housing prices.

V.ii.iii Wage-Price Elasticities

Since it is likely that there is a large number of individuals who do not work (specially women) and therefore report zero wage it would not be appropriate to estimate equation (4), the wage equation, using OLS. Since the dependent variable is censored at zero, we only observe the wages of the employed individuals and estimation of the wage equation by OLS will simply yield inconsistent estimates. We allow the impact of the price of traded goods on wages to vary according to individual characteristics including schooling, age and geographical location of the household. This implies that the elasticities of wage and labor market participation with respect to prices vary from one individual to another, according to her age, schooling and geographic location. This is mandatory to estimate the impact of changes in prices on household wages at different points of the whole income distribution.

The Heckman selection model is estimated using maximum likelihood. All regressions include year and geographic location dummies. Estimates from this model allow us to calculate the impact of the price of trade goods on labor income and the impact of changes in prices of traded goods on the labor marker participation of each individual in the sample. We also take into consideration the fact that men and women's labor market rewards may differ and we therefore separately estimate wage equations by gender. Our wage equations are limited to individuals aged 18 through 55.

Figure P4 shows that the labor effect of is pro-poor, in the case of Paraguay. This fact can be explained by the effect of the change of the price of traded goods has the highest impact in the wage of the low income individuals. The labor gain approximately 10% for low income individuals.

V.ii.iv Estimation of Total Effect

Figure P5 presents the estimation of the consumption and labor income effects. Trade liberalization had a clear positive and pro poor impact. The benefits from trade range from 6% to high income individuals to 14% to low income individuals.

V.ii.v Poverty and Inequality Effects

We use the wage price elasticities estimated above to quantify the change in the head count ratio, the depth of income poverty, the severity of poverty and income inequality indicators in Paraguay after MERCOSUR. In Table P7 we observe an increase in poverty for all considered groups except for men and women with education higher than 12 years. The less educated individuals (especially women less educated) and the inhabitants of Asuncion were the hardest hit by this process.

Table P8 shows no significant changes in income inequality after reform for people living in different regions and individuals with education higher than 12 years. It is observed a decrease in inequality for men and women in general and specially for those individuals with education less than 12 years.

VI Conclusions and Policy Implications

Although it is commonly believed that trade liberalization results in higher GDP, little is known about its effect on poverty and inequality. As many developing countries embrace trade integration as the remedy for all diseases, it is fundamental that liberalization could be analysed from a broad range of perspectives (GDP growth, employment, poverty, inequality, etc).

In our study we analyzed the poverty and inequality effects of trade integration in Uruguay and Paraguay for the 1990-2006 period. In the case of Uruguay, it is possible to say that, as a country, there has been a constant commitment for trade liberalization

at the regional and extra-zona levels. Evidently, some of Uruguayan theoretical ideas have not occurred (Free Trade Agreement with USA). In the case of Paraguay, succeeding administrations in place embraced trade integration and MERCOSUR as a "growth-enhancing" economic policy. Both Uruguay and Paraguay interests many times collided with the politically stronger positions of Argentina and Brazil. In sum, MERCOSUR full-members embraced the trade agreements with different enthusiasm and respect for trade disciplines.

We measure the variation in income needed to compensate each household to keep the same utility after a change in the price of tradable goods. A positive change in the referred variable means that the household has improved when compared to the pre-liberalization scenario. We analyze the impact of trade integration on households welfare through various transmission channels: (1) reduced tariffs affect the price of tradable goods; (2) reduced tariffs impact the prices of non-tradable goods and (3) reduced tariff cause a reallocation of productive resources and changes on labour income. As said, when interpreting results, it is important to bear in mind that while intra-zone tariffs where slashed after MERCOSUR was in place, extra-zone tariffs slightly decreased in the 1992-2006 period. Also, note that while tariffs for the "food and beverage" category were drastically reduced in the initial MERCOSUR years, tariffs affecting other industrial sectors experienced a more "gradual" reduction.

In the case of Uruguay, obtained results evidence that: (1) the decrease of tradable goods' prices largely benefited the lower-income segment of the Uruguayan population; (2) the dynamics of the non-tradable goods' prices had a clear pro-rich impact and (3) trade liberalization had a clear positive impact for both the highly paid and for those with the lower positions in the salary distribution. Going further, one could say that the evolution of the prices of housing, health and education negatively affected the lower income population, while the decrease of the "food and beverages" prices positively affected them. We think that these findings could have clear policy implications: as tariffs are reduced, the price of non-tradable goods became burdensome for the poor; if public authorities aim to develop pro-poor policies, then efforts should target the housing, health and education categories[2].

We also analyse results at the aggregate level (when changes of the prices of tradable and non-tradable goods and labour income are considered together). Results show

[2] The negative impact for the poor through the non-tradable goods' prices is explained by the evolution of the housing prices.

that average income (actually, compensating income – as defined in equation (1)) increased along the liberalization process across the entire income distribution. We think that this result is important, indeed. For the case of Uruguay, talking about the income effect of trade liberalization should not be associated with the typical "winners and losers" scheme. Evidently, specific groups obtained higher benefits than others, but we could not find any evidence about absolute losers resulting from Mercosur. In sum, the question about the impact of trade liberalization over poverty and income can be answer with a common place: (mild) gains from trade. While not evenly distributed among the income distribution, benefits from trade spread into every Uruguayan household.

In the case of Paraguay, obtained results evidence that: (1) the decrease of tradable goods' prices only mildly benefited the lower-income segment of the Paraguayan population; (2) the dynamics of the non-tradable goods' prices had only a minor pro-rich impact and (3) trade liberalization had a negative impact across the Paraguayan population. Specifically, the loss in labour income was more significant for those in the high wage rank. In summary, the negative impact in labour income more than compensates the positive effect of diminishing consumer prices.

We also analyze results at the aggregate level (when changes of the prices of tradable and non-tradable goods and labour income are considered together). Results show that average income (actually, compensating income – as defined in equation (1)) decreased along the liberalization process across the entire income distribution. We think that this result is important, indeed. The case of Paraguay cannot be included in the usual "gains from trade" stories. In particular, we stress that female rural workers are worse off after trade liberalization. In this sense we think that an important consequence of our study would be to explore the transmission channels and the lack of specific policies that allowed this negative impact to happen. Additionally, we refer to the fact that poverty increased more among those with lower levels of education. In a way, this means that trade integration did not resulted in poverty alleviation. Again, this result is particularly true for the rural population.

From the poverty perspective country results are somewhat different. In the case of Uruguay, trade openness resulted in a major decrease in poverty levels. This change is particularly related to the decrease in consumption prices in Uruguay after tariff reductions. For the case of Paraguay, trade integration did result in neither a clear positive effect over GDP growth nor an improvement over poverty indicators. In

particular, rural poverty remains to be pervasive in Paraguay. The problem is particularly present among female population with low levels of education. In a way, this means that trade integration did not result in poverty alleviation.

From the income distribution point of view country results imply that trade liberalization has almost zero effects for the case of Uruguay. In this particular country average income increased across the entire income distribution. In the case of Paraguay, although trade openness had a negative impact in terms of poverty, we conclude that income distribution improved after trade reforms.

Our papers show that in the case of MERCOSUR, the effect of trade on poverty (and income inequality) varies per country and per region. In particular, we conclude that trade integration policies can not be regarded as “growth-enhancing policies”, per se. Moreover, trade integration process should not be considered as a remedy for poverty alleviation. Specific groups of people, mostly in Paraguay have been unable to benefit from trade.

Much has been debated in the political and social arena about the necessity for addressing MERCOSUR asymmetries in terms of the magnitudes of the members’ economies and negotiating power. Still, little has been done in order to take action. We consider that action is required both at the regional level (MERCOSUR) and also at the national level (each country).

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Annex A. Mercosur: Tables and Figures

Table 1. Average Tariff				
MERCOSUR				
	1985	1988	1991	1994
Argentina				
Average	39.2	30.8	14.2	15.4
Standad Dev	9.48	10.3	6	8.8
Brazil				
Average	55.1	41.5	20.3	9.7
Standad Dev	28	19.5	16.8	6.9
Paraguay				
Average	18.7	18.6	13.5	7.2
Standad Dev	13.8	13.7	11.8	6.8
Uruguay				
Average	35.8	26.9	21.3	13.6
Standad Dev	14.9	11.3	6.5	5.9
Estevadeordal et al (2000)				

Table 2		
Intra and Extra MERCOSUR Trade Flows		
USD. Simple Average		
	1995-2000	**2001-2006**
Intra-MERCOSUR Trade	35,464,482	34,620,294
Extra-MERCOSUR Trade	148,903,829	202,954,670
Total MERCOSUR Trade	184,368,311	237,574,964
Intra-MERCOSUR Trade (%)	19%	15%
Source: ALADI		

Annex B. Uruguay: Tables and Figures

Table U1. Trade Openess Coefficient

In constant terms. In %.	
1970-1979	39.6
1980-1989	47.4
1990-1999	76.8
1995-2004	80.5

Source: Central Bank of Uruguay

Table U2

Tariff Structure. Uruguay

Simpled average				
	Food and Beverages	Clothing and Foot	House Equipment and Electronics	Other Traded Goods
Intrazone				
1992	21	23	21	22
1996	4	7	5	11
1999	0	0	0	0
2006	0	0	0	0
Extrazone				
1992	21	23	21	22
1996	14	21	19	19
1999	15	22	21	22
2006	12	19	18	17
Weighted average by expenditure shares				
	Food and Beverages	Clothing and Foot	House Equipment and Electronics	Other Traded Goods
Intrazone				
1992	21	24	21	23
1996	5	9	6	11
1999	0	0	0	0
2006	0	0	0	0
Extrazone				
1992	21	24	21	23
1996	15	21	18	18
1999	17	23	21	21
2006	14	20	18	17

Source: ALADI and SAM.

Table U3

Prices Change from MERCOSUR

Category	Tariff 1992	Consumption Share 1994-95	Intrazone Tariff 1996	Extrazone Tariff 1996	Price Change from MERCOSUR
Food and Beverages	21	62	5	15	**-5.1**
Clothing and Footwear	24	15	9	21	**-4.8**
House Equipment	21	13	6	18	**-4.7**
Other Traded Goods	23	10	11	18	**-6.1**

Note: The price change in the last column is computed using equation (2).

Table U4

Unit-root test: Tradable and non-tradable prices

ADF performed with 12 lags

	Tradable Goods				**Non-tradable Goods**			
Level	**FB**	**CF**	**HQ**	**OT**	**HE**	**TC**	**H**	**ON**
Constant and Trend	-1,73	-2,11	-1,50	-1,67	-2,43	-1,42	-1,40	-1,66
Constant	-2,30	-2,10	-1,74	-1,69	-2,77*	-3,29**	-1,08	-1,80
None	0,03	-11,00	0,41	0,38	0,91	1,52	-0,58	0,19
Log Difference								
Constant and Trend	-3,05	-2,57	-3,90**	-2,08	-3,65**	-3,21*	-1,75	-3,23*
Constant	-1,86	-3,43***	-4,13***	-4,39***	-3,74***	-3,13**	-2,76*	-4,99***
None	-2,81***	-4,33***	-4,59***	-5,38***	-4,70***	-3,89***	-4,48***	-6,43***

* statistically different from 0 at the 10% level or better.

** statistically different from 0 at the 5% level or better.

*** statistically different from 0 at the 1% level or better.

Table U5	
Engle-Granger Cointegration Test ADF performed with 12 lags	
	Constant and Trend
Health and Education	-6,07***
Transport and Communications	-4,25***
Housing	-4,16**
Other Non Tradable	-4,85***
*** statistically different from 0 at the 1% level .	

Table U6a. Poverty: Before and After Trade Reform

Headcount Ratio (P0), Poverty Gap Index (P1) and Squared Poverty Gap Index (P2)						
	Change P0		**Change P1**		**Change P2**	
Total (men + women)						
Total	-0.018	(**)	-0.004	(**)	-0.002	(**)
Education<=6 years	-0.028	(***)	-0.008	(*)	-0.002	(**)
Education 7-12 years	-0.017	(**)	-0.003	(**)	-0.000	
Education >12 years	-0.002		-0.000		-0.000	
Montevideo	-0.006	(**)	-0.001	(**)	-0.000	
Border	-0.041	(**)	-0.001	(**)	-0.003	(**)
South	-0.017	(**)	-0.003	(**)	-0.001	(**)
Central	-0.036	(**)	-0.007	(**)	-0.002	(**)

Source: Author's estimations.

Notes: (**) statistically different from 0 at the 5% level or better.
Poverty line=half of mean laboral income

Table U6b. Poverty: Before and After Trade Reform

Headcount Ratio (P0), Poverty Gap Index (P1) and Squared Poverty Gap Index (P2)

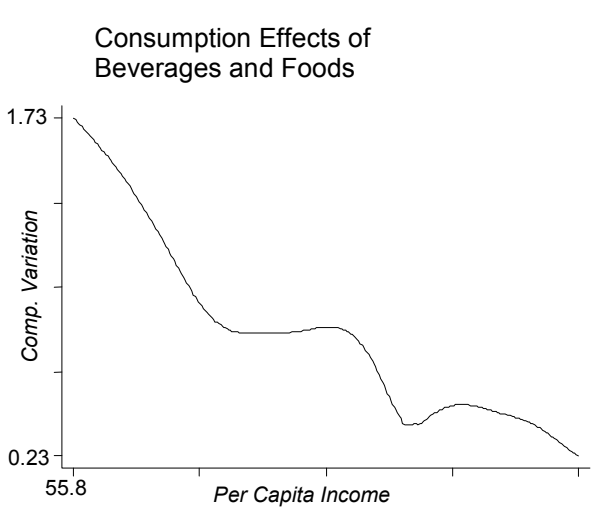
	Change P0		Change P1		Change P2	
1.- Men						
Total	-0.020	(**)	-0.000	(**)	-0.002	(**)
Education<=6 years	-0.036	(**)	-0.009	(**)	-0.004	(**)
Education 7-12 years	-0.018	(**)	-0.004	(**)	-0.001	(**)
Education >12 years	-0.004	(**)	-0.000		-0.001	
Montevideo	-0.008	(**)	-0.002	(**)	-0.001	(**)
Border	-0.049	(**)	-0.011	(**)	-0.004	(**)
South	-0.018	(**)	-0.005	(**)	-0.002	(**)
Central	-0.043	(**)	-0.010	(**)	-0.004	(**)
2.- Women						
Total	-0.015	(**)	-0.103	(**)	-0.001	(**)
Education<=6 years	-0.027	(**)	-0.006	(**)	-0.001	(**)
Education 7-12 years	-0.013	(**)	-0.002	(**)	-0.001	(**)
Education >12 years	-0.001	(**)	-0.000		-0.000	
Montevideo	-0.005	(**)	-0.001	(**)	-0.000	(**)
Border	-0.039	(**)	-0.009	(**)	-0.002	(**)
South	-0.014	(**)	-0.003	(**)	-0.001	(**)
Central	-0.029	(**)	-0.005	(**)	-0.001	(**)

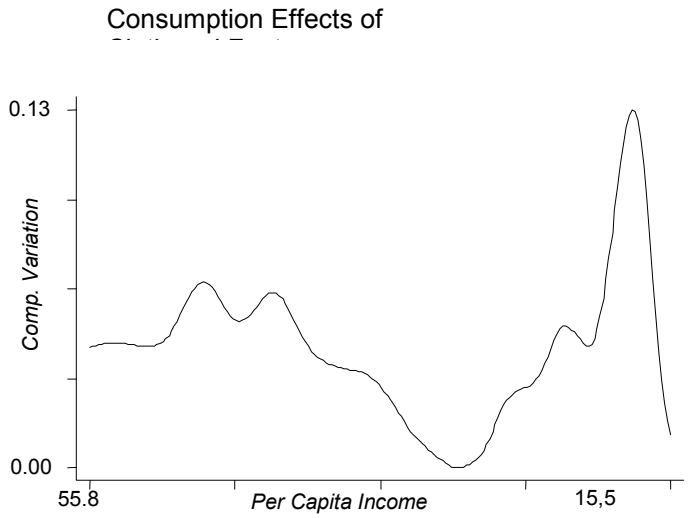
Source: Author's estimations.
Notes: (**) statistically different from 0 at the 5% level or better.
Poverty line=half of mean labor income

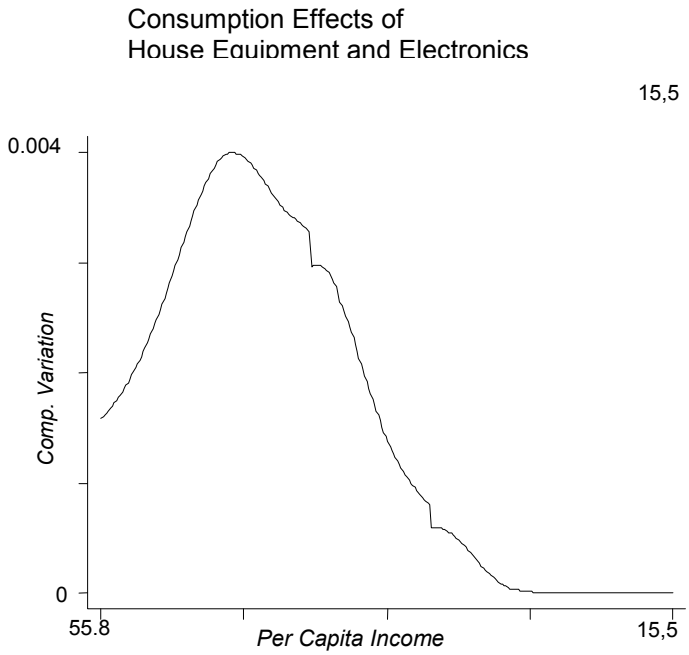
Table U7. Change in Income Inequality: Before and After Trade Reform	
Gini Index	
Total	No Effect
1.- Men	
Total	No Effect
Education<=6	No Effect
Education 7-12	No Effect
Education >12	No Effect
Montevideo	No Effect
Border	No Effect
South	No Effect
Central	No Effect
2.- Women	
Total	No Effect
Education<=6	No Effect
Education 7-12	No Effect
Education >12	No Effect
Montevideo	No Effect
Border	No Effect
South	No Effect
Central	No Effect
Note: Authors estimation.	

Figure U1. Compensating Variation as % of Income by Income Distribution ($U)

by Traded Good







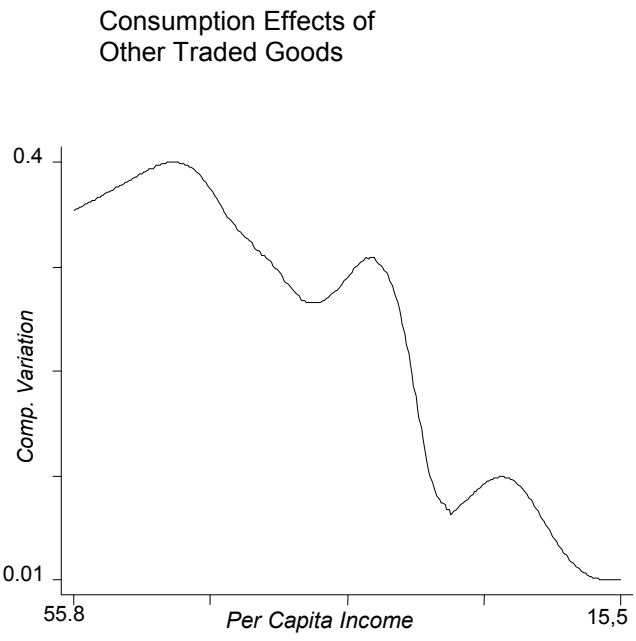


Figure U2. Compensating Variation as % of Income by Income Distribution ($U)
Traded Goods

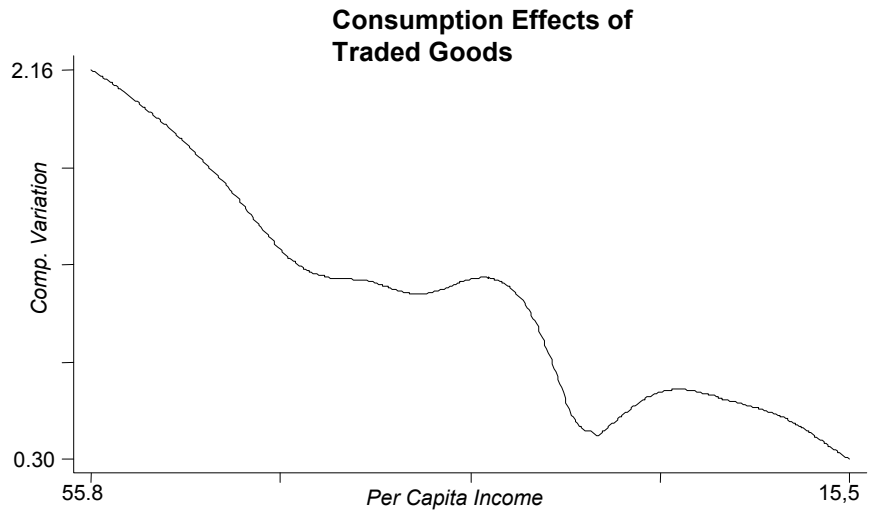


Figure U3. Compensating Variation as % of Income by Income Distribution ($U)
Non Tradable Goods

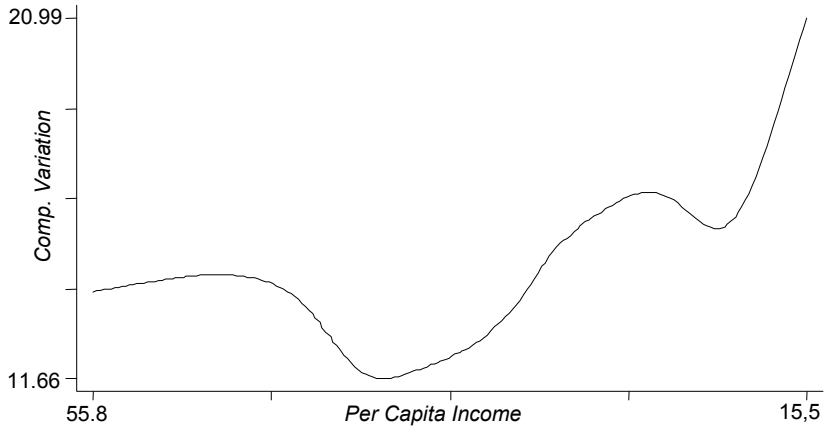


Figure U4. Compensating Variation as % of Income by Income Distribution ($U)
Labor Income Effect

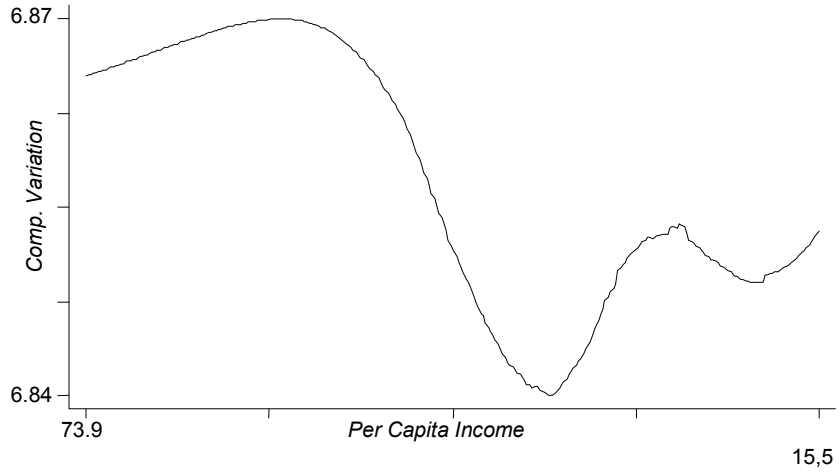
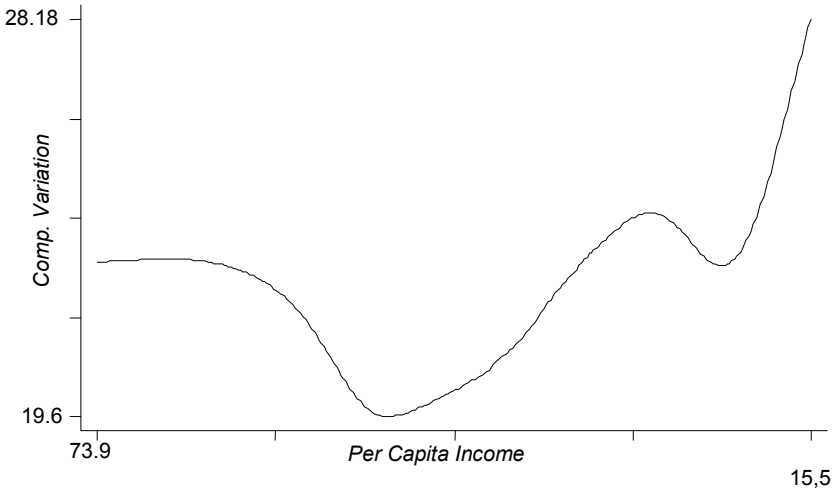


Figure U5. Compensating Variation as % of Income by Income Distribution ($U)
Total Effect



Annex C. Paraguay: Tables and Figures

Table P1	
Trade Openess Coefficient	
In %	
1998	44.20
1999	33.76
2000	41.16
2001	46.17
2002	48.32
2003	55.94
2004	66.44
2005	69.97
2006	81.61
Source: IADB	

Tabla P2

Poverty and Inequality Measures

Asunción and National levels

	1995		2002	
Poverty				
USD 1	1,5	9,4	6,8	21,2
USD 2	4,0	21,9	14,1	37,2
Inequality (Gini Coefficient)				
Per capita income	0,511	0,572	0,557	0,571
Equivalized income	0,495	0,552	0,548	0,552
Labor household income	0,492	0,506	0,545	0,492

Source: Fazio 2005.

Table P3

Tariff Structure. Paraguay

Simpled average				
	Food and Beverages	Clothing and foot	House Equipment and Electronics	Other Traded Goods
Intrazone				
1985	31	39	26	36
1992	12	19	11	22
1996	3	9	1	4
1999	1	2	0	1
2004	0	0	0	0
Extrazone				
1985	31	39	26	36
1992	12	19	11	22
1996	14	21	14	17
1999	16	21	17	19
2004	13	20	16	19
Weighted average by expenditure shares				
Intrazone				
1985	39	42	29	35
1992	14	21	12	21
1996	5	10	1	5
1999	1	3	0	1
2004	0	0	0	0
Extrazone				
1985	39	42	29	35
1992	14	21	12	21
1996	14	22	15	16
1999	15	22	18	19
2004	12	21	17	17

Source: ALADI

Table P4

Prices Change from MERCOSUR

Category	Tariff 1992	Consumption share (%)	Intrazone Tariff 1996	Extrazone Tariff 1996	Price Change from MERCOSUR
Food and Beverages	14	67	5	14	**-3.5**
Clothing and foot	21	13	10	22	**-0.9**
House Equipment and Electronics	12	11	1	15	**-1.4**
Other Traded Goods	21	9	5	16	**-5.5**

Note: the price change in the last column is computed using equation (2)

Table P5

Unit-root Test: Tradable and Non-Tradable Prices

Lag length on ADF chosen using Akaike Criterion

	Tradable Goods				**Non-Tradable Goods**			
Level	**FB**	**CF**	**HQ**	**OT**	**HE**	**TC**	**H**	**ON**
Constant and Trend	-2,58	-1,61	-2,81	-1,07	-1,71	-2,72	-1,26	-0,95
Constant	0,85	0,32	-0,33	-1,33	-1,75	-1,62	-1,61	-2,56
None	3,63	8,34	3,95	4,15	0,75	1,77	1,73	4,24
Log Difference								
Constant and Trend	-7,02***	-12,3***	-6,25***	-7,18***	-2,46	-10,8***	-3,29*	-10,8***
Constant	-6,90***	-12,3***	-6,27***	-7,07***	-1,66	-10,2***	-2,64*	-10,4***
None	-7.28***	-2,47**	-3,40***	-2,21**	-1,61*	-2,29**	-1,75*	-3,14***

* statistically different from 0 at the 10% level or better.

** statistically different from 0 at the 5% level or better.

*** statistically different from 0 at the 1% level or better.

Table P6 – Prices Cointegration	
Engle-Granger Cointegration Test Lag length on ADF chosen using Akaike Criterion	
	Constant and Trend
Health and Education	-3,56**
Transport and Communications	-5,95***
Housing	-6,88***
Other Non Tradable	-6,46***
** statistically different from 0 at the 5%	
*** statistically different from 0 at the 1% level .	

Table P7. Poverty: Before and After Trade Reform

Headcount Ratio (P0), Poverty Gap Index (P1) and Squared Poverty Gap Index (P2)								
	Change P0			**Change P1**			**Change P2**	
1.- Men								
Total	+0.034	(**)		+0.013	(**)		+0.005	(**)
Education<=6 years	+0.038	(***)		+0.016	(*)		+0.007	(**)
Education 7-12 years	+0.027	(**)		+0.005	(**)		+0.001	(**)
Education >12 years	+0.004			+0.001			+0.000	
Asunción	+0.075	(**)		+0.017	(**)		+0.005	(**)
Central Urban	+0.013	(**)		+0.003	(**)		+0.000	
Central Rural	+0.045	(**)		+0.019	(**)		+0.008	(**)
Rest Urban Country	+0.039	(**)		+0.007	(**)		+0.002	(**)
Rest Rural Country	+0.122	(**)		+0.021	(**)		+0.011	(**)

2.- Women						
Total	+0.059	(**)	+0.012	(**)	+0.005	(**)
Education<=6 years	+0.068	(**)	+0.014	(**)	+0.005	(**)
Education 7-12 years	+0.031	(**)	+0.006	(**)	+0.001	(**)
Education >12 years	+0.000		+0.000		+0.000	
Asunción	+0.090	(**)	+0.017	(**)	+0.003	(**)
Central Urban	+0.013	(**)	+0.003	(**)	+0.001	(**)
Central Rural	+0.073	(**)	+0.016	(***)	+0.007	(**)
Rest Urban Country	+0.023	(*)	+0.009	(**)	+0.003	(**)
Rest Rural Country	+0.098	(**)	+0.017	(**)	+0.020	(**)

Source: Author's estimations.

Notes: (**) statistically different from 0 at the 5% level or better.

Poverty line=half of mean labor income

Table P8. Income Inequality: Before and After Trade Reform

Changes in Gini Index and Theil Index

	Gini change		Theil change	
1.- Men				
Total	-0.017	(**)	-0.018	(**)
Education<=6 years	-0.008	(**)	-0.008	(**)
Education 7-12 years	-0.008	(**)	-0.008	(**)
Education >12 years	+0.007		+0.005	
Asunción	0.000		0.000	
Central Urban	0.000		0.000	
Central Rural	0.000		0.000	
Rest Urban Country	0.000		0.000	
Rest Rural Country	0.000		0.000	

2.- Women		
Total	-0.022 (**)	-0.022 (**)
Education<=6 years	-0.015 (**)	-0.015 (**)
Education 7-12 years	-0.011 (**)	-0.011 (**)
Education >12 years	+0.004	+0.004
Asunción	0.000	0.000
Central Urban	0.000	0.000
Central Rural	0.000	0.000
Rest Urban Country	0.000	0.000
Rest Rural Country	0.000	0.000

Source: Author's estimations.

Notes: (**) statistically different from 0 at the 5% level or better.

Poverty line=half of mean labor income

Figure P1. Compensating Variation as % of Income by Income Distribution ($U) by Traded Good

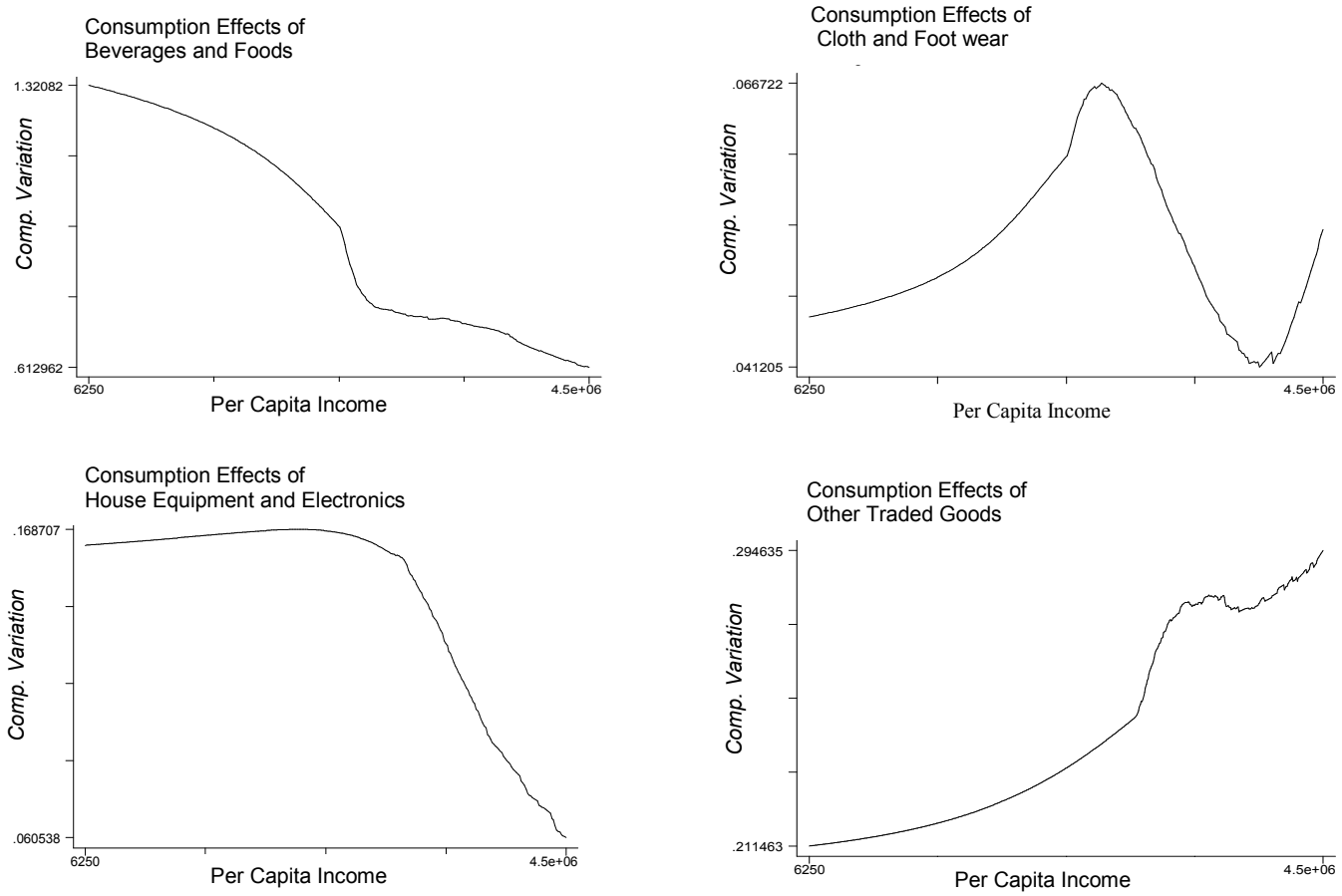


Figure P2. Compensating Variation as % of Income by Income Distribution Traded Good

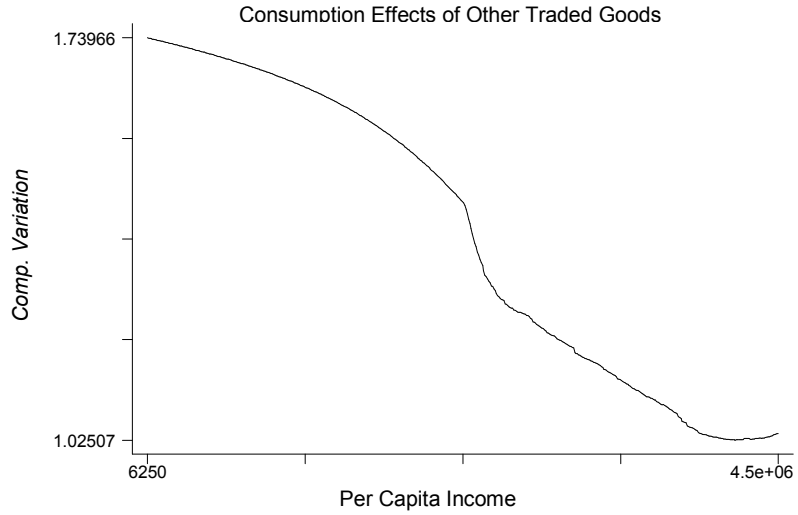


Figure P3. Compensating Variation as % of Income by Income Distribution
Non Tradeable Goods Effect

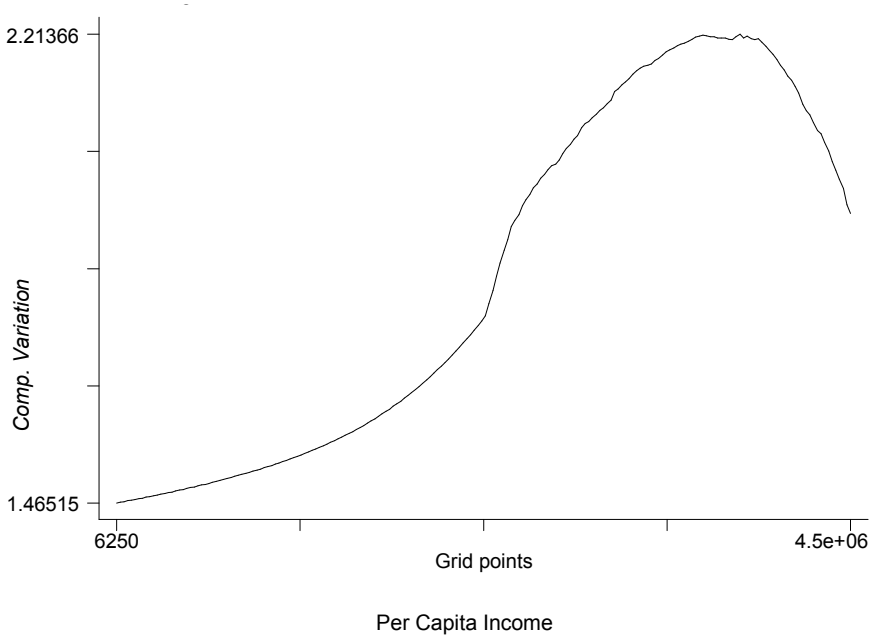


Figure P4. Compensating Variation as % of Income by Income Distribution
Labor Income Effect

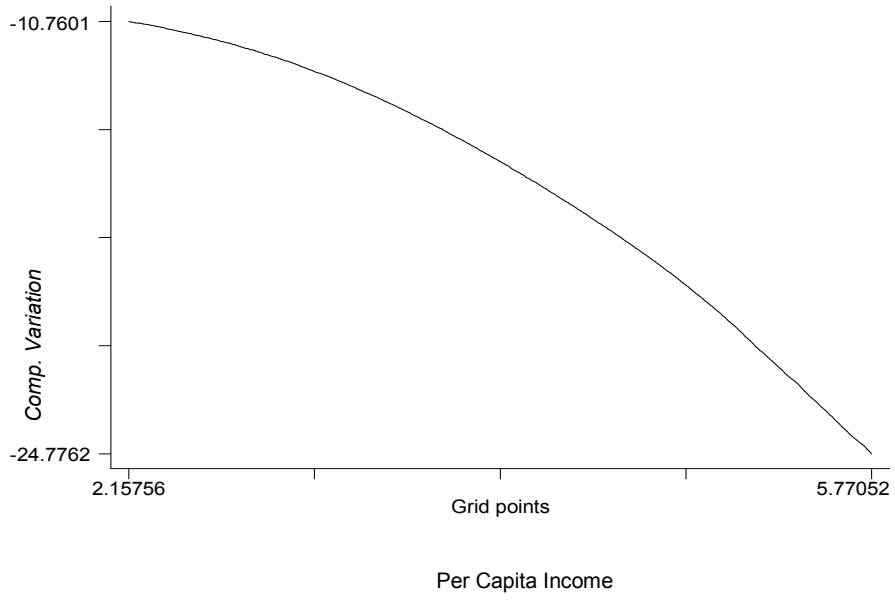
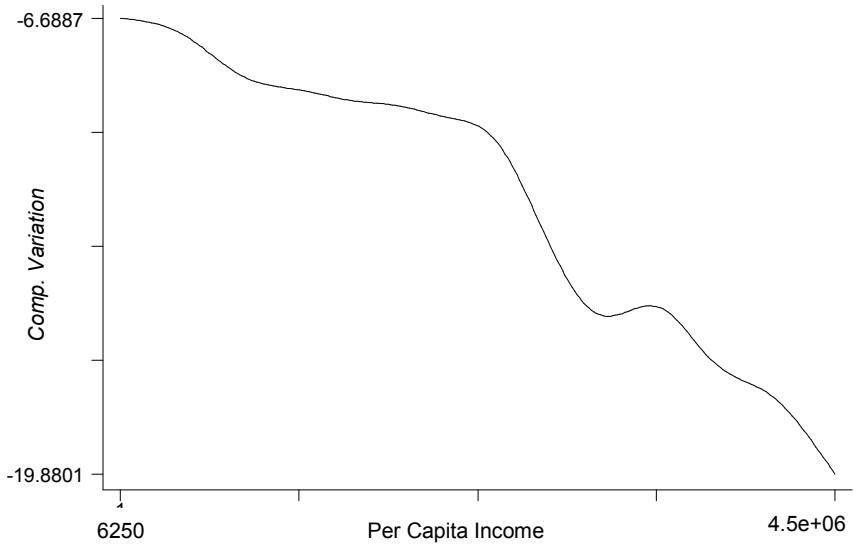


Figure P5.

Compensating Variation as % of Income by Income Distribution

Total Effect



Appendix A: Uruguayan Data

To undertake this study we use the annual Uruguayan national household survey, Encuesta Continua de Hogares (ECH), conducted by the Instituto Nacional de Estadística (INE). Each survey wave contains approximately 56,000 persons from about 18,000 households. The ECH is administered throughout the year with the purpose of generating an accurate picture of the urban Uruguayan employment situation along with the socio-economic characteristics of the population. We use ECH data for estimating the price-wage elasticity for the 1990-2001 period.

We also use data from Encuesta Nacional de Gastos e Ingresos de los Hogares (ENGIH), the national household expenditure and income survey (we use the 1996 wave). This survey identifies the consumption structure of an average family in Uruguay. The survey is conducted every 10 years and targets both rural and urban households. We use this data in order to estimate the consumption share of each of the relevant consumption categories for our study (food and beverage, clothes and footwear, furniture and electronics, other traded goods, health and education, transport and telecommunications, housing and other non-traded goods). ENGIH also contains socio-economic information about Uruguayan households. This fact is crucial for us, because it allows us to identify the consumption structure of households of the same socioeconomic group. We use this information in order to assess the impact of change in prices on changes in the value of the consumed basket of each household.

Asociación Latinoamericana de Integración (ALADI) and Uruguay's Ministry of Finance (MF) provided historical information about the Mercosur common external tariffs for the period between 1986 and 2006. Secretaría del Mercosur (SM) provided data about intra-zone tariff levels (for the same time horizon). Both ALADI and SM provided raw data at a per-item desegregation level. Our work consisted in identifying relevant expenditure categories and unifying disaggregated items into one of the four tradable goods categories so that we could process data from both tariffs and consumer price levels. Additionally, ALADI amd The Central Bank of Uruguay (BCU) sourced our information about trade flows for the four-product categories with Mercosur and the rest of the world. We use this information in order to determine the impact of change in tariffs on prices of tradable and non-tradable goods. Information about price levels comes from the Consumer Price Index, constructed by INE.

Appendix B: Paraguayan Data

To undertake this study we use the annual Paraguayan national household survey, Encuesta de Hogares (EH), conducted by the Dirección General de Estadística y Censos (DGEEC). Each survey wave contains approximately 12,000 persons from about 2,500 households. The EH is administered throughout the year with the purpose of generating an accurate picture of the urban and rural Paraguayan employment situation along with the socio-economic characteristics of the population. We use EH data for estimating the price-wage elasticity for the 1995-2000 period.

We also use data from Encuesta de Hogares – Mano de Obra (EHMO), the national household expenditure and income survey (we use the 1996 wave). This survey identifies the consumption structure of an average family in Paraguay. The survey targets both rural and urban households. We use this data in order to estimate the consumption share of each of the relevant consumption categories for our study (food and beverage, clothes and footwear, furniture and electronics, other traded goods, health and education, transport and telecommunications, housing and other non-traded goods). EHMO also contains socio-economic information about Paraguayan households. This fact is crucial for us, because it allows us to identify the consumption structure of households of the same socioeconomic group. We use this information in order to assess the impact of change in prices on changes in the value of the consumed basket of each household.

Asociación Latinoamericana de Integración (ALADI) provided historical information about the Mercosur common external tariffs for the period between 1986 and 2006. Secretaría del Mercosur (SM) provided data about intra-zone tariff levels (for the same time horizon). Both ALADI and SM provided raw data at a per-item desegregation level. Our work consisted in identifying relevant expenditure categories and unifying disaggregated items into one of the four tradable goods categories so that we could process data from both tariffs and consumer price levels. Additionally, ALADI and The Central Bank of Paraguay (CBP) sourced our information about trade flows for the four-product categories with Mercosur and the rest of the world. We use this information in order to determine the impact of change in tariffs on prices of tradable and non-tradable goods. Information about price levels comes from CBP.